

REMARKS

In this Amendment, claims 1, 2, 8, 20, and 28 are amended, claim 29 is canceled, and withdrawn claims 9-19 and 22-27 are also canceled. Therefore, after entry of this Amendment, claims 1-8, 20, 21, and 28 are all the claims pending in the application.

Claims 1, 2 and 20 have been amended to recite that the signal transduction that is determined is “from said cytokinin receptor.” This amendment is supported, for example, by the Abstract of the Disclosure.

Claims 8 and 28 have been amended to incorporate the limitations of claim 29, which has been canceled.

No new matter has been introduced.

Entry of this Amendment is respectfully requested.

Response to Claim Rejections Under 35 USC §112, Second Paragraph

At page 3 of the Office Action, the Examiner rejects claim 28 under 35 USC §112, second paragraph as being indefinite. More particularly, the Examiner states that the term “stringent conditions” renders claim 28 indefinite.

Claim 28 has been amended to recite the hybridization conditions of claim 29.

Withdrawal of this rejection is requested.

Response to Claim Rejections Under 35 USC §112, First Paragraph

(1) At page 3 of the Office Action, the Examiner rejects claim 8 under 35 USC §112, first paragraph, as not being adequately enabled by the specification. More particularly, the Examiner states that the specification is not enabling with respect to measuring the activity of

“partially transmembrane region-deleted type cytokinin receptors,” “chimera-type cytokinin receptors,” and cytokinin receptors having a plurality of amino acids deleted, substituted or added. The Examiner believes that sufficient structural and/or functional descriptions are lacking.

This rejection is respectfully traversed, because the specification provides sufficient structural and functional information with respect to “partially transmembrane region-deleted type cytokinin receptors,” “chimera-type cytokinin receptors,” and cytokinin receptors having a plurality of amino acids deleted, substituted or added.

First, page 10, lines 8-14 of the specification states:

The cytokinin receptor to be used in the present invention belongs to the histidine kinase family and is protein composed of extracellular regions, transmembrane regions, histidine kinase regions (regions having histidine kinase activity in the cell and holding Histidine residue to be an active site), and receiver regions (regions having a reception part for phosphate group transfer and holding Aspartic acid residue to be an active site).

With regard to “partially transmembrane-deleted type cytokinin receptors,” structural characteristics are disclosed in the specification at page 22, lines 1-15, and examples of such receptors are disclosed in the specification from page 22, line 16 to page 23, line 4.

A cytokinin receptor to be used for the present invention includes a cytokinin receptor wherein said cytokinin receptor has at least one transmembrane region but less than that in its natural form (commonly 2 to 4 transmembrane region)....

Such cytokinin receptors of partially transmembrane regions-deleted type are cytokinin receptors whose transmembrane region structure may be assumed by employing structure assumption software available in http://www.ch.embnet.org/software/TMPRED_form.html and whose transmembrane regions are partially deleted, for example, in 1 to 2 sites and are less in number than the number of the transmembrane regions of the natural type cytokinin receptors (i.e. natural form).

More particularly, examples of such cytokinin receptors include a cytokinin receptor having the amino acid sequence from amino acid number 196 to 1176 among the amino acid sequence represented by SEQ ID NO:2 (2 transmembrane regions); a cytokinin receptor having the amino acid sequence from amino acid number 50 to 1176 among the amino acid sequence represented by SEQ ID NO:2 (3 transmembrane regions); a cytokinin receptor having the amino acid sequence from amino acid number 32 to 1036 among the amino acid sequence represented by SEQ ID NO:4 (3 transmembrane regions)....

Further, the specification provides working examples of partially transmembrane-deleted type cytokinin receptors. AHK2 Δ described in Examples 10-14 is a partially transmembrane region-deleted type cytokinin receptor (2 transmembrane regions), and consists of amino acids 196-1176 of SEQ ID NO:2. In Example 15, substances were screened for those having agonist-activity to the AHK2 Δ partially transmembrane region-deleted type cytokinin receptor.

With regard to “chimera-type cytokinin receptors” structural characteristics are disclosed in the specification from page 23, line 15 to page 26, line 16. For example:

A cytokinin receptor to be used in the present invention also includes a chimera-type cytokinin receptor comprising extracellular regions of the cytokinin receptor, transmembrane regions of the cytokinin receptor, and histidine kinase regions of the cytokinin receptor, wherein each of the regions is a homogenous regions to one another and receiver regions for the histidine kinase, which are heterogeneous regions to these regions.

Histidine kinase regions including examples of amino acid sequences are described at page 23, line 15 to page 24, line 10.

Receiver regions including examples of amino acid sequences are described at page 24, lines 11-23, and further at page 26, lines 6-16.

Sensor regions including examples of amino acid sequences are described at page 24, line 24 to page 25, line 12.

With respect to cytokinin receptors having a plurality of amino acids deleted, substituted or added, these are defined in the amended claims as being encoded by a polynucleotide that hybridizes under stringent conditions to SEQ ID NO: 1, 3 or 5. Methods for obtaining a polynucleotide encoding such a cytokinin receptor are disclosed in the specification from page 15, line 17 to page 17, line 15.

It is believed that the present specification provides sufficient structural information with respect to the cytokinin receptors recited in claim 8, as well as a number of working examples of the same. In view of this disclosure, one of skill in the art would be able to measure the activity of the cytokinin receptors recited in claim 8 without undue experimentation.

(2) At page 4 of the Office Action, the Examiner rejects claims 1, 3-8, 20 and 21 under 35 USC §112, first paragraph, as not being adequately enabled by the specification. More particularly, the Examiner states that the specification does not enable the determination of agonist activity to a cytokinin receptor by measuring any intracellular signal transduction.

Applicants have amended claims 1, 2 and 20 to recite “determining a level of intracellular signal transduction from said cytokinin receptor.”

The Examiner states at page 5 of the Office Action that measuring histidine kinase activity of the cytokinin receptor is enabled by the specification, and states that the specification teaches the use of a two-component regulatory system for measuring signal transduction from cytokinin receptors.

Thus, it is believed that the specification adequately enables measuring intracellular signal transduction from said cytokinin receptors and determining a level of intracellular signal transduction from said cytokinin receptor.

Withdrawal of these rejections are requested.

Response to Rejection Under 35 USC §103(a)

At page 5 of the Office Action, the Examiner rejects claims 1, 2, 6-8, 20 and 21 under 35 USC §103(a) as being obvious over Benfey et al. over Iawamura et al. The Examiner states that the declaration under 37 CFR §1.131 submitted in response to the January 6, 2004 Office Action would have been sufficient to overcome the rejections if properly executed.

First, on behalf of Applicants, the undersigned thanks the Examiner for providing her comments with respect to the substance of the declaration submitted in response to the January 6, 2004. The unsigned declaration is being submitted herewith, and the signed declaration will

Amendment under 37 C.F.R. § 1.114
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follow shortly. A Suspension of Action of one-month is also being submitted herewith to obtain the necessary time to obtain the executed declaration.

Withdrawal of this rejection is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

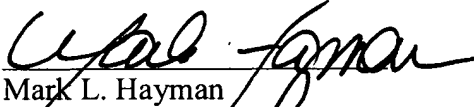
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